GEORGES VAN BIESBRECK, of the Royal Observatory of Belgium, has been appointed assistant professor of practical astronomy at the University of Chicago.

PROFESSOR H. L. WHITE, formerly connected with the North Dakota Agricultural College, who is spending the present year in graduate work at the University of Wisconsin, has been elected professor of biological chemistry in the college of physicians and surgeons, medical department of the University of Southern California at Los Angeles.

ASSOCIATE PROFESSOR WILLIAM DRAPER HARKINS has been promoted to an assistant professorship of chemistry in the University of Chicago.

IN the department of anatomy of the college of physicians and surgeons, Columbia University, Dr. Oliver S. Strong and Dr. Vera Danchakoff, have been appointed to be assistant professors.

DR. HARRY CLARK, instructor in physics at Harvard University, has been appointed professor of physics at Victoria College, Wellington, New Zealand.

DISCUSSION AND CORRESPONDENCE

THE CENTRAL ILLINOIS TORNADO OF MAY 26, 1917

A TORNADO crossed Central Illinois from Pike County on the western side of the state almost directly east into Vigo County, Indiana, then bent southeastward into Monroe County, Indiana, on the afternoon of May 26, 1917. The tornado was responsible for the deaths of over 100 people, a large quantity of live stock, and the destruction of farm buildings and other improvements, railroad cars, and portions of a number of towns.

The greatest destruction was wrought in Coles County, Illinois, where it struck the residential districts of the workmen of the cities of Mattoon and Charleston—the former a city of 15,000, and the latter a city of 6,000. The tornado passed through this county between three and four P.M., *i. e.*, that part of the day in which tornadoes are generally most effective. Sixty people were killed, 500 homes demolished, and others seriously damaged in Mattoon at 3:30 P.M. Travelling at about 45 miles per hour the storm struck Charleston, 11 miles east of Mattoon at 3:45. Here, 34 were killed, over 400 homes more or less demolished, 15 industrial establishments partially or wholly destroyed, and two railway stations wiped out.

The track of the storm is about 225 miles long, but the length of the path in which almost complete devastation was wrought is about 40 miles. The width of the storm track varies from one fourth to one half mile, with an average of about one third of a mile. In numerous places minor damages resulted over an area about three fourths of a mile wide to the south of the track. The storm's path indicates that the tornado swerved slightly in some places and in others raised to the extent that serious effects did not result.

Destruction was most complete, in fact entirely complete in a zone from 500 to 700 feet wide to the right of the storm center's track. The parts of the two cities that were in this part of the storm track, with the exception of the heavier industrial buildings of Charleston, were more completely demolished than if a gigantic roller had passed over them, for the buildings were broken into short sticks, split into narrow pieces, and some parts carried rods and even miles eastward. Inspection shows three zones of variable destruction: First, the one of complete devastation; second, a zone from 300 to 500 feet wide to the left of the storm center's track and a similar one of similar width to the right of the devastated zone, where buildings are demolished beyond repair but not razed; and third, a zone still further to the right of the center where damages decrease outward from buildings moved to lifted roofs, fallen chimneys, and broken windows. Objects to the right of the center were moved forward and in, while objects to the left of the center were moved backward and in. Trees which were probably near the center were felled either north or south.

The reason for the location of the area of

complete devastation being to the right of the center seems to be plausibly explained when the agents of destruction are considered. On the right of the center there is the explosive action due to the reduced pressure on the outside of the buildings, the eastward component of the counter-clockwise wind of the tornado (probably over 400 miles per hour), the forward movement of the storm, and the west wind which was prevalent at that time all working in conjunction as agents of destruction; while on the left side of the center the westward component of the counter-clockwise wind is partially counterbalanced by the forward movement of the storm and the prevalent west wind. However, the backward or east wind of the storm was strong enough to move an eight room, one story house 41 feet to the westward, others shorter distances, to break elm trees 18 inches in diameter and to tip over a large percentage of the monuments in a cemetery in Mattoon.

Evidence of the explosive action so frequently stated as the principal agent in tornado destruction is not as general as one would expect. The north ends and the east roofs were pulled from some houses in the partially demolished districts; plate glass windows were broken and had fallen out; in one of the churches and a store in which the glass was supported by metallic strips the windows were made convex; a pump and 14 feet of water was sucked from a well; these, and the various forms of roofing which were picked off like feathers from a fowl, indicate the suction action of the storm. Although examples of explosion are not common, it is quite probable that in and near the center of the storm explosion was a big factor in the preparation of buildings for the crushing action of the wind.

Blunt cedar sticks were found imbedded one and one half inches in posts, and oat-straws one half inch in a maple tree. Another tree was decorated like an Indian's helmet with feathers. Huge oak and elm trees were twisted off, freight cars filled with brick were upset, as were also the tank cars of the Standard Oil Company. These and the buildings moved and crushed indicate the force of the wind of the storm.

METEROLOGICAL CONDITIONS

The *Daily Weather Map,* published at St. Louis at seven A.M. of the date of the storm, shows a well-defined cyclonic area covering most of the interior lowland of the United States. The isobars are oval in shape with their longest axis extending north and south. The isobars also show a slight bulging to the south in the southern quadrant. Cloudiness was prevalent over most of the Mississippi valley.

At 11 A.M.[1] a thunder shower occurred at Charleston. The clouds broke for a short time but lights were necessary at 2 P.M., and the air was exceedingly sultry and oppressive. At 3 P.M. a heavy, black, nimbus cloud appeared in the northwest, and frequent and fierce flashes of lightning occurred. Shortly before 3:45 a greenish black cumulo-nimbus cloud began to tumble in from the west. The wind suddenly changed from east to west through the south and hail began to fall. Then the hail lessened in amount and the wind attained a velocity of eighty miles per hour, the barometer dropped three tenths of an inch but came up immediately, and the temperature fell fourteen degrees. (Shown by the barograph and thermograph records.) Suddenly the wind lulled and flattened spheroidal hail, some having a major axis of $2\frac{1}{4}$ inches, fell until the ground was covered. The hail was accompanied and followed by a deluge of rain.

Although the funnel or balloon-shaped cloud of the tornado was not visible to those in the cities, it was seen and well described by numerous individuals who were west of the cities and to the right or left of the storm.

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June 4, 1917

[1] Observations made at the State Normal School, Charleston, one mile to the south of the storm track.